

Community-Based Rangeland Planning on the Tohono O'odham Nation

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Cattle have been part of Tohono O'odham culture for over 300 years, but efforts to promote rangeland management on the Tohono O'odham Nation had little success until a community-based rangeland planning project in the Sif Oidak District helped increase understanding of this unique socioecological system and empowered villages to restore and manage their rangelands.

Living with Livestock in the Sonoran Desert

The Tohono O'odham Nation is an American Indian reservation that covers 2.8 million acres of Sonoran Desert grasslands and shrublands in south central Arizona and is divided into 11 political districts, originally designated as grazing districts in 1934. The Sif Oidak District spans more than 420,000 acres of Sonoran desertscrub and is located at the northern end of the reservation. This vast area of open range (Photo 1), unfenced except for its boundaries, receives an average of 8.3 inches of precipitation annually. The Tohono O'odham people have lived with cattle since the late 1600s, beginning with the arrival of Spanish missionaries. Since that time, cattle and horses have played a major role in O'odham society. When livestock were abandoned by the missions in the 1700s, O'odham people hunted them as wild game. Later, in the 1860s, the Tohono O'odham began to domesticate these feral herds of cattle, employing skills learned while working on neighboring ranches in Mexico and the United States.¹ Mixing these new skills with their own social values, which emphasize community and extended family over individual advancement, and generosity rather than accumulation, a unique system of communal livestock management emerged.²



Photo 1. The Sif Oidak landscape.

Sif Oidak's rangelands are divided by "invisible boundaries" that separate the customary grazing areas of the district's 9 villages. These boundaries are flexible and change depending on the particular year's forage production, availability of water, and arrangements made between villages.³ Village livestock representatives (or "reps" as they are called in Sif Oidak) are elected by each of the villages to oversee the livestock that carry brands registered in their village. They are also responsible for organizing multivillage roundups and representing their village's interests in neighboring village roundups. The livestock representatives also meet monthly as members of the Sif Oidak Livestock Committee (SOLC) to plan for roundups, approve new brands, and address issues related to livestock management in their district.

In the beginning of the 20th century, the Tohono O'odham Nation's rangelands suffered heavy degradation from a combi-

nation of overstocking and extreme droughts.⁴ In response to the degradation and decline in productivity of rangelands on the reservation, federal agents attempted to implement various range improvements and grazing plans. These well-intentioned efforts frequently neglected to include the direct participation of livestock owners and other community members during the planning phase, and, as a result, most range management programs met with strong resistance.^{5,6}

Origins of the Sif Oidak Community-Based Planning Project

In January 2001, the SOLC volunteered to participate in a pilot rangeland management planning project proposed by the Tohono O'odham Coordinated Resource Management Planning group. The SOLC joined this project for 3 major reasons. First, it wanted to increase its members' understanding of the district's rangelands and of rangeland planning and management. Second, SOLC members were interested in continuing to be the principal managers of their own rangelands. Federal legislation in the mid-1990s mandated that tribes develop and implement grazing regulations. By developing a district rangeland management plan through a community-based planning process, SOLC members hoped to demonstrate their ability to manage grazing in their district and influence forthcoming tribal grazing regulations, preempting outside interference in local affairs. Third, the SOLC wanted to access technical assistance and cost-share programs from the tribe's newly formed Rangeland Conservation and Management Program (RCMP) and the Natural Resources Conservation Service's (NRCS) Environmental Quality Incentive Program (EQIP). Both programs required a management plan as a condition of assistance. The project was facilitated by the University of Arizona Cooperative Extension, with support from the RCMP, the Sells, Arizona, NRCS Field Office, and the Tohono O'odham Soil and Water Conservation District. The most important participants, and those who made and continue to make the decisions, were the SOLC members and their respective communities.

Two facets of the project distinguish it from past rangeland planning attempts on the Tohono O'odham Nation. First, the project was directed by the village livestock representatives. Changes to current management are decided on by the livestock committee only after consensus has been reached within each representative's village and among the committee's members. Second, the community-based planning process was grounded on building a knowledge base that community members can draw on when making management decisions. This knowledge base was developed through educational workshops, field trips, invited speakers, and participatory mapping and inventory of the district's rangelands.

The Community-Based Planning Process

The SOLC and facilitators (the lead authors of this article) met monthly for 2.5 years. The planning meetings were open

Community-Based Natural Resource Management

Community-based natural resource management (CBNRM) promotes the direct involvement of local resource users in natural resource planning and management. Advocates of CBNRM believe that local people are more likely to implement beneficial management practices and policies if they participate directly in designing them and that management decisions are based on better and more complete information when local people's knowledge and needs are considered.

to any interested community members, and, occasionally, guests from other districts attended and observed. The first several months were dedicated to identifying and discussing key rangeland and livestock management issues in the district. Through this process, the group identified both long-term goals and short-term objectives that could be addressed through management actions. Because the group had limited financial resources, it gave priority to objectives that would have the greatest positive impact on other management issues in the district.

Once key management objectives and concerns were identified, the SOLC representatives and facilitators worked together to produce a geographic information system (GIS) map of the district identifying conservation action sites—sites where the identified threats and opportunities were greatest. The map also documented existing infrastructure and livestock movement patterns. To develop the map, the facilitators and NRCS staff met with community members and livestock representatives from each village individually to visit their village rangelands and record their livestock management practices, resource concerns, and management opportunities.

SOLC members also identified gaps in their knowledge and sought specific information they needed to make management decisions. A knowledge base was built through the monthly meetings, guest speakers, field trips, and hands-on workshops on topics such as rangeland ecology and health, revegetation and reseeded, and grazing and drought management. Through this self-education process, the facilitators discovered that very little rangeland science literature addressed rangeland management for 8-inch precipitation zones in the Sonoran Desert. Even less information was available (at least from the United States) about managing livestock under a multivillage, communal land tenure system in which livestock are primarily used for subsistence (rather than produced commercially). Because of the unique ecological and cultural context of livestock management in Sif Oidak, the group critically evaluated the relevance and applicability of all information and recommendations it received. The need for site-specific information to guide management eventually led to an MS thesis research project by one of the facilitators (John U. Hays, Jr), which assessed the relationship between grazing intensity



Photo 2. Educational workshops like this one on ecological sites and rangeland health were a key part of the community-based planning process. Workshops involved local community members as presenters and brought in outside experts in rangeland science and management.

and the density of perennial forage grasses on upland sites in the district and documented historic and current uses and management of livestock in Sif Oidak.³ The demand for more workshops and educational materials about local rangeland ecology and management led to a successful spin-off project, funded by the US Department of Agriculture (USDA), Western Sustainable Agriculture Research and Education program (WSARE), to develop and implement a rangeland curriculum for the Tohono O’odham Nation.

Gaining Broad Community Support

Throughout the planning process, the village livestock representatives kept other district residents informed about the project. They took information and ideas back to their villages, and the SOLC made quarterly presentations to the Sif Oidak District Council, the local elected government. To participate in the NRCS EQIP program, cooperators are required to show that they have “control” of the management area. This requirement presents special challenges on Indian reservations because individuals cannot own Indian Trust Land, and, in the Tohono O’odham Nation, land is held and used in common by all district residents. To meet EQIP requirements, control was defined as written approval by the community to participate in the cost-share agreement in a given area. Encouraging participation and maintaining open communication with all district members from the start helped the project gain support both at the village level and from the district council (Photo 2). The district council even created a rotating loan fund, making a temporary loan to a village to initiate the cost-share work. This seed money was then returned to the district and used in another village. Without early and consistent communication and broad participation, village and council support for the planning project might not have been as strong. In this consensus-based society, where local decisions still hold the greatest sway, the project could not have progressed and succeeded without village and district council backing.

Tangible Outcomes

One tangible outcome of this project is a formal, written rangeland management plan. The written plan provides a synthesis and analysis of the major rangeland and livestock management issues in Sif Oidak and presents management alternatives and recommendations developed and discussed throughout the planning meetings. It incorporates maps that portray specific resource concerns, such as areas of accelerated erosion and regions that lack reliable water developments, and includes ecological inventory information and baseline data. Because of the challenges of communal tenure, the sometimes disputed “invisible boundaries” between village ranges, and unresolved issues over how to allocate unbranded stock during roundups, the plan is not prescriptive. Instead, it presents a detailed description and analysis of the current situation and proposes and evaluates several different strategies that individual villages might take to improve livestock and rangeland management. The plan thus respects the decision-making autonomy of each village and provides options for village-level management while stressing the need for continued dialogue to resolve district-wide tensions over key issues.

Although the plan does not lay out detailed management actions for the entire district, it defines the issues and presents viable solutions that individual villages may choose to follow. The planning process served as a catalyst, inspiring several villages to develop their own, more specific management plans and to participate in the EQIP program (Photo 3). One village identified a large, low-lying area of clay soils prone to periodic flooding as a key resource area and fenced the area with the help of the NRCS. The area currently is resting, and the bottom will be used in a rotational grazing system. Another village targeted a large saltbush (*Atriplex canescens*) community as an emergency drought reserve, rehabilitated an adjacent water source, and is now in the process of fencing the area so that it can rest during the



Photo 3. Field trips to livestock associations on other parts of the reservation, such as this one to the Tres Equis Livestock Association, and to ranches off the reservation exposed participants to a variety of rangeland and livestock management strategies.



Photo 4. One of the cofacilitators of the community-based planning process assisted in a number of roundups in Sif Oidak, giving him an inside view of livestock management in the district and helping build trust between the facilitators and local livestock owners.

spring growing season. A third village is concentrating on halting erosion and increasing infiltration in the rangelands around their community by constructing dikes and improving existing structures.

Increased Knowledge, Understanding, and Cooperation

The collaboration among the NRCS, RCMP, University of Arizona Cooperative Extension, and the SOLC in this project helped to strengthen working relationships between natural resource professionals and livestock owners on the Tohono O'odham Nation and in Sif Oidak. Top-down imposition of a tribal grazing ordinance on the district would likely have encountered strong opposition from local livestock owners and led to continued distrust of tribal and federal agency involvement in resource management at the village level. Although a tribal grazing ordinance is still on the horizon, the planning project familiarized district members with the terms and concepts employed by rangeland managers, and tribal and NRCS range professionals are now more aware of the needs in the district.

Increased cooperation between livestock owners and the district council was another positive outcome from this project. Both groups worked together to overcome the challenges of navigating federal programs that assume all cooperators are private property owners. These skills will help livestock owners leverage support from their district and others to meet future objectives.

Key Learnings

- **Begin with a small, feasible project.** At the beginning of an extended project that focuses on goals that may take a long time to realize, a small, achievable task allows people to interact in a less formal environment and helps

establish trust among participants and confidence in the group process.

- **Participatory mapping helped outsiders understand local realities while helping villagers learn about their resources and options.** The community mapping process empowered livestock owners to share their knowledge with agency and Cooperative Extension personnel. The village livestock representatives explained in detail the seasonal migratory habits of their cattle, locations of different plant communities, variations in forage production, and duration of water sources. They also discussed boundary issues among villages and pointed out other significant aspects of the landscape. Through the use of GIS, this information was presented back to the SOLC in the form of several different thematic maps. The maps were an excellent tool to increase the group's awareness of the landscape, facilitate decision-making, and assist the village livestock representatives in communicating and explaining their ideas to other villagers.
- **Flexibility, adaptability, trust, and understanding are more important than rigid objectives or rules.** Because of the high climatic variability of the Sif Oidak area, policies or plans that assume predictable weather patterns are ill-advised. The availability of forage and water is in continual flux, and being able to adapt to these changes as they arise is key. Developing ways to solve problems together and creating an environment where participants feel comfortable enough to freely voice their opinions is more beneficial than passing bylaws that address today's issues but are potentially irrelevant to future conditions. Creating a safe environment for participation is not easy, especially when distrust is long-standing and rooted in historic power differences within communities or between local people and outsiders, but without it, and without the dialogue it allows, community-based planning will not work.
- **Informal interactions are as important as formal planning meetings.** Initially the facilitators assumed that formal planning meetings would be an effective way for participants to share ideas and values. In reality, they learned much more about Sif Oidak livestock management and feasible management options in other settings. For example, one facilitator helped gather cattle during a number of roundups in Sif Oidak (Photo 4). Later, Sif Oidak community members helped him collect ecological data on their rangelands for his thesis research. These opportunities helped the facilitators gain a much better understanding of what the local cattle are like and how Sif Oidak livestock producers work together to gather cattle. Attending roundups gave the facilitators a chance to observe how people react in real situations, which is not always the same as the descriptions provided in meetings. Additionally, people are more willing to discuss their

viewpoints openly in smaller groups. Most of the real conversations between the facilitators and SOLC members happened in pickup trucks bouncing along dirt roads leading to remote stock tanks. These conversations helped the outsiders learn about local conditions and built trust among all participants.

- **Continued, long-term commitments are crucial for this type of project to work.** The planning process is a slow one. The key to success for this work was the sincere commitment in time and interest by all the participants. The SOLC, University of Arizona Cooperative Extension, NRCS, and RCMP all devoted long hours to the process. They also were quick to realize that many of the desired outcomes would not happen overnight and to put to rest concerns about things moving too slowly.

Conclusions

The community-based rangeland planning project in the Sif Oidak District was a success on several levels. The project forged a positive working relationship among district livestock owners, the NRCS, and the Tohono O'odham Range Conservation and Management Program—relationships that continue today. The project helped bring villages together to collectively address ecological and livestock management challenges that affect all district members. The project also strengthened the partnership between the SOLC and the Sif Oidak District Council and enhanced their problem-solving skills.

On a larger scale, the initiative shown by the Sif Oidak District through its participation in this pilot project helped contribute to a more optimistic outlook towards rangeland management on the Tohono O'odham Nation. The project was observed by other districts on the reservation, and several have requested that the process be replicated in other locations. We hope that other districts will follow Sif Oidak's lead, and that the key learnings distilled in this article will be helpful to them in embarking on their own community-based rangeland

planning efforts. Although they are specific to a particular place and culture, these lessons may also provide useful insights to rangeland professionals and community members working with other Native American nations to improve the stewardship of their rangelands for future generations.

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References

1. XAVIER, G. H. 1938. The cattle industry of the southern Papago with some information on the reservation cattle industry as a whole. Tucson, AZ: Unpublished manuscript on file at the Arizona State Museum Library.
2. FONTANA, B. L. 1976. Desertification of Papagueria: cattle and the Papago. *In*: M. H. Glantz [ed.]. Desertification: Process, problems, perspectives. Tucson, AZ: University of Arizona Press. p 59–69.
3. HAYS, J. 2004. Perennial grass abundance and livestock management in the arid rangelands of the Sif Oidak District, Tohono O'odham Nation [M.S. thesis]. Tucson, AZ: University of Arizona. 165 p.
4. ROBINETT, D. 1990. Tohono O'odham range history. *Rangelands* 12:296–300.
5. BAUER, R. 1971. The Papago cattle economy: implications for economic and community development in arid lands. *In*: W. G. McGinnies, B. J. Goldman, and P. Paylore [eds.]. Food fiber and the arid lands. Tucson, AZ: University of Arizona Press. p 79–102.
6. BOOTH, P. M. 2001. "If the cattle are going to die, let them die": Tohono O'odham and New Deal conservation. *In*: R. L. Clow and I. Sutton [eds.]. Trusteeship in change: Toward tribal autonomy in resource management. Boulder, CO: University Press of Colorado. p 115–144.